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Post Office Box 5257
New York, NY 10150-5257
Tel: (212) 527-7700
Fax: (212) 527-7701

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U.S. Application Serial No.: 09/913,419

1. (Currently Amended) ~~An isolated~~ A cytokine-binding domain of an isolated Domain 4 of a β_c chain (D4 β_c) of a human cytokine receptor selected from the group consisting of GM-CSF receptor, IL-3 receptor, and IL-5 receptor, and consisting of a portion of amino acid residues 338-438 of D4 β_c , the portion which binds to at least one cytokine and is capable of binding to at least one cytokine and transducing a cytokine signal through a single cytokine receptor, said cytokine-binding domain comprising a portion of the B'-C' loop of D4 β_c comprising any one of the following residues Lys362, Met363, Arg364, Tyr365, Glu366, and His367, or a combination thereof, and a groove defined by the B'-C', the F'-G' loops a F'-G' loop comprising any one of the following residues Thr416, Arg418, and Tyr421, or a combination thereof, and and a groove located at an N-terminal section of D4 β_c , said B'-C' loop, F'-G' loop, groove, and N-terminal section having the structure as shown in Figures 1A, B, C, and D end of the cytokine-binding domain where one wall of the groove is formed by the B'-C' loop and the F'-G' loop and the other wall of the groove is formed by residues 338-342 of D4 β_c .

2. (Currently Amended) The cytokine-binding domain according to claim 1 wherein the F'-G' loop comprises Arg418 and Tyr421 of D4 β_c and the N-terminal section end of D4 β_c .

3. (Canceled)

Page 2

4. (Previously Presented) The cytokine-binding domain according to claim 1 comprising Tyr421 of D4 β .

5. (Previously Presented) The cytokine-binding domain according to claim 1 wherein the B'-C' loop residues of D4 β form a type 1 β -turn.

6. (Currently Amended) The cytokine-binding domain according to claim 1, wherein the cytokine-binding domain is defined by an area bordered by any one of the following residues selected from the group consisting of Lys362, Met363, Arg364, Tyr365, Glu366, His367, Thr416, Arg418, and Tyr421, ~~or a combination thereof.~~

7. (Canceled)

8. (Previously Presented) The cytokine-binding domain according to claim 1 that binds to at least two cytokines selected from the group consisting of IL-3, IL-5, GM-CSF, IL-4 and IL-13.

9. (Canceled)

10. (Canceled)

11. (Previously Presented) The cytokine-binding domain according to claim 2 wherein the F'-G' loop adopts a type IV β -turn.

12. (Canceled)

Page 3

13. (Canceled)

14. (Canceled)

15. (Canceled)

16. (Canceled)

17. (Canceled)

18. (Canceled)

19. (Canceled)

20. (Canceled)

21. (Canceled)

22. (Canceled)

23. (Canceled)

24. (Canceled)

25. (Canceled)

26. (Canceled)

27. (Canceled)

28. (Canceled)

Page 4

29. (Canceled)

30. (Canceled)

31. (Canceled)

32. (Currently Amended) The cytokine-binding domain according to claim 1 which comprises a hydrophobic patch, said patch comprising residues Ile338, Ala341, Met361, and Tyr365 of D4 β c and which forms a lip at an end of a groove on the surface of the cytokine-binding domain.

33. (Previously Presented) The cytokine-binding domain according to claim 32 further comprising Met340, Pro342, and Lys362 of D4 β c.

34. (Previously Presented) The cytokine-binding domain according to claim 32 further comprising Ile368 or Tyr421 of D4 β c.

35. (Canceled)

36. (Currently Amended) The cytokine-binding domain according to claim 1 wherein the B'-C' loop comprises residues 362 to 368 of D4 β c.

37. (Currently Amended) The cytokine-binding domain according to claim 1 wherein the F'-G' loop comprises residues 416 to 422 of D4 β c.

Page 5

38. (Currently Amended) The cytokine-binding domain according to claim 1 wherein the B'-C' loop comprises residues Tyr365, His367, Ile368 of D4 β c. which form a cytokine-binding triad that converges to form a pivot point.

39. (Currently Amended) The cytokine-binding domain according to claim 1 wherein ~~the~~ a type 1 β -turn is formed from residues 365 to 368 of D4 β c.

40. (Currently Amended) The cytokine-binding domain according to claim 11 wherein the type IV β -turn comprises Arg418 and Tyr421 which Tyr421 projects away from the structure ~~as shown in Figure 1A.~~

41. (Currently Amended) The cytokine-binding domain according to claim 1 defined by a first wall formed by ~~a portion of~~ the B'-C' loop and the F'-G' loop and a second wall formed by the N-terminal ~~section~~ end of D4 β c.

42. (Canceled)

43. (Currently Amended) The cytokine-binding domain according to claim 41 wherein the N-terminal ~~section~~ end of the cytokine-binding domain forming the second wall comprises any one of residues 338-342 of D4 β c.

Page 6

44. (Previously Presented) The cytokine-binding domain according to claim 1 wherein the B'-C' loop comprises residues Lys362, Met363, Arg364, Tyr365, Glu366, and His367.

45. (Previously Presented) The cytokine-binding domain according to claim 1 wherein the F'-G' loop comprises residues Thr416, Arg418, and Tyr421.

46. (Currently Amended) The cytokine-binding domain according to claim 1 ~~which consists essentially~~ consisting of amino acid residues 338-421 of D4 β .